

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
5 August 2004 (05.08.2004)

PCT

(10) International Publication Number
WO 2004/066608 A3

(51) International Patent Classification⁷: **G06K 9/36**, 9/38

(21) International Application Number:
PCT/US2004/001640

(22) International Filing Date: 21 January 2004 (21.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/441,583 21 January 2003 (21.01.2003) US

(71) Applicant (for all designated States except US): **SHARP
LABORATORIES OF AMERICA, INC.** [US/US]; 5750
N.W. Pacific Rim Boulevard, Camas, WA 98607 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FENG, Xiao-fan**
[US/US]; 17814 SE 38th Street, Vancouver, WA 98683

(US). **DALY, Scott, J.** [US/US]; P.O. Box 1307, Kalama,
WA 98625 (US). **LEI, Shawmin** [US/US]; 4522 N.W.
Valley Street, Camas, WA 98607 (US). **THOMAS, Ren-
jit, Tom** [IN/US]; 621 SE 168th Avenue, Vancouver, WA
98684 (US).

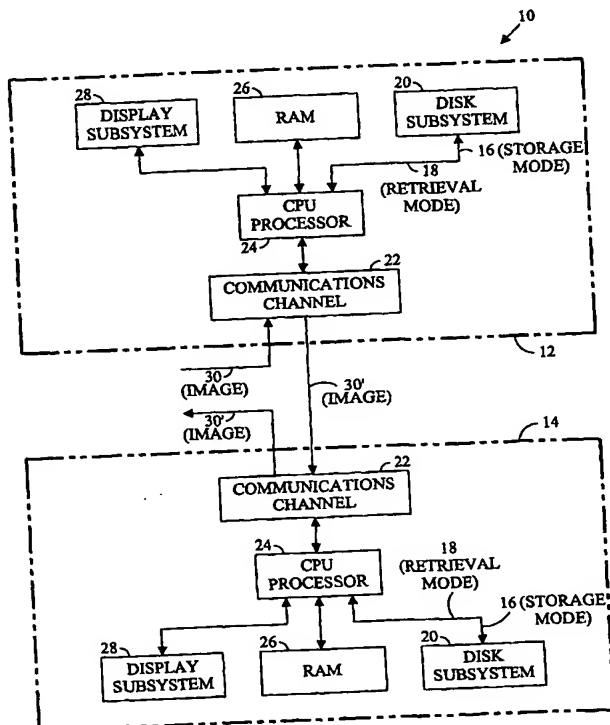
(74) Agent: **RUSSELL, Kevin, L.**; Chernoff Vilhauer Mc-
Clung & Stenzel, LLP, 1600 ODS Tower, 601 SW Second
Avenue, Portland, OR 97205 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

[Continued on next page]

(54) Title: **IMAGE COMPRESSION USING A COLOR VISUAL MODEL**

(57) Abstract: A system for coding images, and
more particularly, to a system for compressing
images to a reduced number of bits by employ-
ing a Discrete Cosine Transform (DCT) in com-
bination with a visual model.



WO 2004/066608 A3



(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:
27 January 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/0164C

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06K 9/36, 9/38

US CL : 382/250,251

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 382/166, 232, 244-248, 250-253; 348/395.1, 403.1-408.1; 358/426.01-426.16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,426,512 A (WATSON) 20 June 1995 (20.06.1995), column 3-4, 6-9	1-10,12-25

Y		11
Y	US 6,349,151 B1 (JONES et al) 19 February 2002 (19.02.2002), abstract.	3-7,9
A	US 4,780,761 A (DALY et al) 25 October 1988 (25.10.1988).	1-25
A	FENG et al. Halftone Quality Evaluation Using Color Visual Models Proc. of PICS, April 2002, abstract.	1-25

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

07 August 2004 (07.08.2004)

Date of mailing of the international search report

05 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Virginia Kibler

Telephone No. (703) 306-4072

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/01640

Continuation of B. FIELDS SEARCHED Item 3:
EAST, IEEE, Inventorship, Google
search terms: quantization, Q-tables, model, DCT